

AMENDMENTS TO THE CLAIMS

1. (Cancelled)

2. (Currently amended): A data driver of a display forming an image frame divided into three sub-frames respectively corresponding to three primary colors by sequentially scanning horizontal lines, the data driver comprising:

~~a shift register receiving image data of three primary colors in serial and outputting the image data of the three primary colors in parallel within each of scan durations of the horizontal lines;~~

a shift register receiving and outputting image data of one of the three primary colors within the sub-frame corresponding to the one of the three primary colors;

a sample and hold register acquiring the image data of the one of the three primary colors from the shift register;

~~a first multiplexer receiving the image data of the three primary colors from the sample and hold register and outputting them in a sequence of the primary colors within each of the scan durations of the horizontal lines;~~

~~a second multiplexer outputting gamma reference voltages for the three primary colors in the sequence of the primary colors within each of the scan durations of the horizontal lines;~~

a gamma multiplexer outputting a gamma reference voltage corresponding to the one of the three primary colors within the sub-frame corresponding to the one of the three primary colors;

a digital-to-analog converter for gamma calibration, receiving the image data from the ~~first multiplexer~~ sample and hold register and the gamma reference voltage ~~voltages~~ from the ~~second gamma~~ multiplexer, and outputting a calibrated image signals ~~of the three primary colors~~; and

a buffer receiving the calibrated image signal ~~signals~~ from the digital-to-analog converter ~~and outputting the calibrated image signals in the sequence of the primary colors,~~

wherein the horizontal lines are sequentially scanned within each of the sub-frames.

3. (Cancelled)

4. (Cancelled)

5. (New) The data driver of claim 2, wherein the image frame comprises a first sub-frame corresponding to a first primary color of the three primary colors, a second sub-frame corresponding to a second primary color of the three primary colors, and a third sub-frame corresponding to a third primary color of the three primary colors, wherein the second sub-

frame is subsequent to the first sub-frame and the third sub-frame is subsequent to the second sub-frame.

6. (New) A data driver of a display forming an image frame by sequentially scanning horizontal lines, wherein each of scan durations of the horizontal lines is divided into three time slots respectively corresponding to three primary colors, the data driver comprising:

- a shift register receiving image data of the three primary colors in serial and outputting the image data of the three primary colors in parallel within each of the scan durations of the horizontal lines;

- a sample and hold register acquiring the image data from the shift register;

- a gamma multiplexer outputting gamma reference voltages for the three primary colors in a sequence of the time slots within each of the scan durations of the horizontal lines;

- three digital-to-analog converters for gamma calibration, receiving the image data of the three primary colors from the sample and hold register and the gamma reference voltages for the three primary colors from the gamma multiplexer, and outputting calibrated image signals of the three primary colors, respectively; and

- three buffers respectively receiving the calibrated image signals of the three primary colors from the three digital-to-analog converters, in the sequence of the time slots.

7. (New) The data driver of claim 6, wherein the gamma multiplexer outputs the gamma reference voltages for a first primary color of the three primary colors within the time slot corresponding to the first primary color, the gamma reference voltages for a second primary color of the three primary colors within the time slot corresponding to the second primary color, and the gamma reference voltages for a third primary color of the three primary colors within the time slot corresponding to the third primary color, wherein the time slot corresponding to the second primary color is subsequent to the time slot corresponding to the first primary color and the time slot corresponding to the third primary color is subsequent to the time slot corresponding to the second primary color.

8. (New) A data driver of a display forming an image frame by sequentially scanning horizontal lines, wherein each of scan durations of the horizontal lines is divided into three time slots respectively corresponding to three primary colors, the data driver comprising:

- a shift register receiving image data of three primary colors in serial and outputting the image data of the three primary colors in parallel within each of the scan durations of the horizontal lines;
- a sample and hold register acquiring the image data of the three primary colors from the shift register;

- a first multiplexer receiving the image data of the three primary colors from the sample and hold register and outputting them in a sequence of the time slots within each of the scan durations of the horizontal lines;
- a second multiplexer outputting gamma reference voltages for the three primary colors in the sequence of the time slots within each of the scan durations of the horizontal lines;
- a digital-to-analog converter for gamma calibration, receiving the image data from the first multiplexer and the gamma reference voltages from the second multiplexer, and outputting calibrated image signals of the three primary colors; and
- a buffer receiving the calibrated image signals from the digital-to-analog converter and outputting the calibrated image signals in the sequence of the time slots.

9. (New) The data driver of claim 8, wherein the second multiplexer outputs the gamma reference voltages for a first primary color of the three primary colors within the time slot corresponding to the first primary color, the gamma reference voltages for a second primary color of the three primary colors within the time slot corresponding to the second primary color, and the gamma reference voltages for a third primary color of the three primary colors within the time slot corresponding to the third primary color, wherein the time slot corresponding to the second primary color is subsequent to the time slot corresponding

to the first primary color and the time slot corresponding to the third primary color is subsequent to the time slot corresponding to the second primary color.

10. (New) The data driver of claim 9, wherein the first multiplexer outputs the image data of the first primary color within the time slot corresponding to the first primary color, the image data of the second primary color within the time slot corresponding to the second primary color, and image data of the third primary color within the time slot corresponding to the third primary color.

11. (New) A data driver of a display forming an image frame by sequentially scanning horizontal lines, wherein each of scan durations of the horizontal lines is divided into three time slots respectively corresponding to three primary colors, the data driver comprising:

a shift register receiving and outputting image data of the three primary colors in a sequence of the time slots within each of the scan durations of the horizontal lines;

a sample and hold register acquiring the image data from the shift register;

a gamma multiplexer outputting gamma reference voltages for the three primary colors in the sequence of the time slots;

a digital-to-analog converter for gamma calibration, receiving the image data from the sample and hold register and the gamma reference voltages from the gamma

multiplexer, and outputting calibrated image signals of the three primary colors; and

a buffer receiving the calibrated image signals from the digital-to-analog converter and outputting the calibrated image signals in the sequence of the time slots.

12. (New) The data driver of claim 11, wherein the gamma multiplexer outputs the gamma reference voltages for a first primary color of the three primary colors within the time slot corresponding to the first primary color, the gamma reference voltages for a second primary color of the three primary colors within the time slot corresponding to the second primary color, and the gamma reference voltages for a third primary color of the three primary colors within the time slot corresponding to the third primary color, wherein the time slot corresponding to the second primary color is subsequent to the time slot corresponding to the first primary color and the time slot corresponding to the third primary color is subsequent to the time slot corresponding to the second primary color.

13. (New) The data driver of claim 12, wherein the shift register receives outputs the image data of the first primary color within the time slot corresponding to the first primary color, the image data of the second primary color within the time slot corresponding to the second primary color, and image data of the third primary color within the time slot corresponding to the third primary color.

14. (New) A method for driving a display forming an image frame by sequentially scanning horizontal lines, wherein each of scan durations of the horizontal lines is divided into three time slots respectively corresponding to three primary colors, the method comprising:

receiving image data of the three primary colors within each of the scan durations of the horizontal lines;

generating gamma reference voltages for the three primary colors in a sequence of the time slots within each of the scan durations of the horizontal lines; and

generating calibrated image signals of the three primary colors according to the image data of the three primary colors and the reference voltages in the sequence of the time slots.

15. (New) A method for driving a display forming an image frame divided into three sub-frames respectively corresponding to three primary colors by sequentially scanning horizontal lines, the method comprising:

receiving image data of one of the three primary colors within the sub-frame corresponding to the one of the three primary colors;

generating a gamma reference voltage corresponding to the one of the three primary colors within the sub-frame corresponding to the one of the three primary colors; and

generating a calibrated image signal according to the image data and the gamma
reference voltage,

wherein the horizontal lines are sequentially scanned within each of the sub-frames.